
Public Health Reports

VOLUME 61

DECEMBER 20, 1946

NUMBER 51

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Public Health Reports

Vol. 61 • DECEMBER 20, 1946 • No. 51

Printed With the Approval of the Bureau of the Budget as Required by Rule 42
of the Joint Committee on Printing

THE SYMPTOMS OF THE PSYCHOPATH¹

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The present study was carried out in the Psychopathic Unit, Medical Center for Federal Prisoners, Springfield, Mo. The Medical Center is the prison hospital for the 26 other institutions in the Federal Bureau of Prisons; the Psychopathic Unit is a 304-room unit designed for the care and study of various types of psychopathic patients.

The principal purpose of our study was to secure as accurate and as reliable data as possible on the outstanding symptoms of psychopathic personality. The results which we have obtained will be of practical value both in the understanding of the subject and in the diagnosis of the condition. The systematic procedure which was used shows that certain traits and characteristics are valid symptoms of the psychopath, but our investigation naturally does not show that these are all of the symptoms of the psychopath which can be found.

THE RECORD SHEET

After some preliminary experimenting with 21 trial subjects, a record sheet was constructed for use in recording the individual results of each of the subjects. The 115 items in this record sheet are given in the first column of tables 1 and 2. These items are divided into three parts: (1) "personal data," (2) "forms of psychopathic behavior," and (3) "traits and characteristics of the psychopath." The "forms of psychopathic behavior" (part II) have been further divided into two groups: (a) "primitive modes of behavior," and (b) "illegal offenses and antisocial modes of behavior." Items 61-66 in part III refer specifically to the individual's psychopathic behavior.

An extensive study was made of the literature on psychopathic personality, and the items in the record sheet were selected on the basis of a very large number of articles and clinical studies. It has been claimed that each of the items 67-115 is a symptom of the psychopath, and it has sometimes also been assumed that some of the

¹ From the Bureau of Medical Services, Medical Center for Federal Prisoners, Springfield, Mo.

TABLE 1.—*Personal data*

	A	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
	All subjects	Least psycho- pathic	Most psycho- pathic	Alcoholic	Bisexual	Active homo- sexual	Passive homo- sexual	Egocentric	Bitter emotional	Aggressive	Inhumane	Criminal	Psychotic symp- toms	Neurotic symp- toms	History of sypth- ills	History of serious head injury
Number of subjects.....	101	23	29	30	16	8	15	27	29	33	17	34	10	11	10	13
Part I. Personal Data ¹																
2. Age (median number of years).....	23.3	22.2	22.1	25.5	22.5	23.5	26.1	22.9	23.3	22.0	21.7	22.8	26.0	29.0	28.8	24.2
4. Race (percent):																
Caucasian.....	8	17	3	0	0	13	7	2	0	0	6	0	0	0	10	0
Colored.....	22	20	22	27	16	38	20	19	14	21	15	26	10	13	25	19
English.....	16	9	16	12	22	0	17	17	16	15	15	10	20	13	10	8
Irish.....	26	30	26	30	22	31	33	31	33	31	38	32	30	36	25	42
Scotch.....	8	11	2	12	9	13	13	9	7	6	9	7	15	18	5	8
5. Religion (percent):																
Protestant.....	46	52	34	55	38	63	53	38	31	36	35	29	50	82	70	62
Catholic.....	35	35	38	31	38	25	40	31	38	33	35	38	30	0	20	22
None.....	19	13	28	14	25	13	7	31	31	30	29	32	20	18	10	15
6. Principal residence during the past 15 years (percent):																
East.....	15	17	3	10	13	13	13	19	7	6	18	6	0	9	0	0
South.....	21	17	28	27	31	13	7	11	21	15	18	26	30	27	60	8
Middle West.....	29	26	28	23	25	13	53	22	34	30	12	21	30	18	10	31
South Central.....	22	26	31	27	19	38	7	33	21	30	41	29	20	36	20	31
West.....	8	9	7	3	6	13	13	7	7	9	6	9	0	0	0	0
7. Formal education (median grade)	8.4	8.6	8.2	8.3	7.7	8.2	9.9	8.9	8.6	7.9	8.6	8.3	8.2	9.0	8.5	7.9
8. Outside vocation (percent):																
Unskilled labor.....	17	17	28	13	0	13	7	19	10	6	24	12	20	18	20	23
Skilled labor.....	20	17	21	17	31	13	20	11	14	12	6	18	10	27	10	15
Farming.....	10	4	14	17	13	25	7	19	14	12	6	6	10	9	0	15
Miscellaneous.....	25	26	13	25	25	53	53	30	38	30	36	38	40	18	60	23
None.....	27	35	24	27	31	25	13	22	24	39	29	26	20	27	10	23
9. Marital history (percent):																
Married and not divorced.....	6	9	10	3	13	0	0	4	10	6	6	6	0	0	10	8
Married once and divorced.....	10	9	10	23	6	0	13	19	14	15	18	21	30	27	30	23
Married 2 or more times and divorced.....	9	13	3	3	6	26	14	4	10	3	12	6	0	0	20	0
Never married.....	75	70	76	70	75	75	73	74	66	76	65	68	70	45	45	69
10. Children (percent):																
No children.....	80	74	76	70	88	100	93	89	86	82	88	82	80	45	60	85
One child.....	16	17	21	20	13	0	7	7	14	18	12	9	20	45	30	15
Two or more children.....	4	9	3	10	0	0	6	4	0	0	0	9	0	9	10	0

11. Home and parents (percent):

Normal
Illegitimate, adopted, foster home

Normal
 Illegitimate, adopted, foster home

10. Children (percent):	80	74	76	70	88	100	93	89	86	82	88	20	9	45	10	15
No children.....	16	17	23	20	13	0	0	7	14	18	12	9	20	0	0	0
One child.....	16	17	23	20	13	0	0	7	14	18	12	9	20	0	0	0
Two or more children.....	4	9	3	10	0	0	0	4	0	0	0	0	0	0	0	0
11. Home and parents (percent):																
Normal.....	16	13	14	13	13	13	27	15	7	15	12	12	20	9	20	15
Legitimate, adopted, foster home.....	16	22	10	23	13	25	20	26	14	18	18	12	30	27	10	8
One or more parents criminal.....	19	17	14	0	19	38	13	11	45	33	9	9	18	18	30	31
Stepfather or stepmother.....	35	37	41	40	31	38	13	33	33	33	35	35	10	27	30	31
Antagonistic to father.....	19	17	28	17	13	25	27	26	31	24	26	26	20	18	40	23
Reared by various relatives.....	19	17	21	13	13	25	20	37	17	21	29	24	20	9	20	31
Inadequate supervision.....	28	26	38	20	25	13	13	37	34	27	29	24	36	36	40	38
Emotionally rejected.....	22	17	31	17	19	13	27	22	31	15	29	18	20	0	10	23
11a. Emotional environment of home (weighted mean).....	-5	0	-9	-5	-9	-1	+7	-1.0	-1.3	-1.0	-1.7	-1.4	-1.7	-5	-1.0	-1.6
12. Cultural level (weighted mean).....	-3	-2	-5	-3	-4	-0	0	-4	-5	-4	-6	-4	-9	-1	-1	-5
13. Early associates (weighted mean).....	+2	+6	-7	+3	-2	+5	+1.3	-3	-2	-2	-9	-5	-1.0	+1.0	+2	-2
14. Age on leaving home (median).....	14.8	14.9	15.1	14.9	14.5	16.5	17.8	15.4	15.0	14.8	13.8	14.9	15.0	15.3	15.5	16.2
15. Age delinquency began (median).....	13.2	13.5	13.3	13.2	13.1	12.5	13.0	12.9	13.4	13.0	10.4	12.7	12.5	15.8	14.5	13.0
16. Military service (percent):																
In U. S. Army.....	48	39	24	57	63	50	87	52	34	33	41	29	60	45	20	46
Discharge from some military service.....	48	43	28	70	50	50	87	52	38	33	35	35	60	55	30	31
No military service.....	45	52	59	23	38	50	13	41	52	55	53	56	30	36	70	46
17. Type of institution to which first committed (percent):																
Juvenile institution.....	50	48	59	43	56	38	27	52	41	55	65	56	70	36	60	46
Reformatory.....	22	17	21	23	19	13	47	26	31	21	24	29	10	27	20	38
Penitentiary.....	25	22	21	30	25	38	27	22	28	24	12	12	20	27	20	15
Number of convictions (median).....	2.7	2.2	3.4	3.5	3.0	4.0	1.1	3.3	3.3	2.8	5.0	4.6	3.0	4.6	3.8	2.7
19. Total number of years incarcerated (median).....	3.7	3.0	5.0	4.8	3.2	6.7	1.5	4.5	4.8	5.7	5.1	5.2	4.0	7.5	6.7	4.9
20. Current conviction (percent):																
Dyer Act.....	42	17	72	53	50	63	0	59	66	64	47	59	60	55	60	54
Sex morality.....	24	26	3	20	13	13	87	14	7	6	6	9	20	18	10	8
Other.....	35	56	24	26	37	26	14	26	26	30	48	33	20	27	30	39
21. Number of years of current sentence (median).....	3.7	3.2	3.7	3.1	3.5	5.0	3.4	4.2	3.8	3.9	4.2	4.6	4.5	3.4	2.9	3.4
22. Number of days good time lost (mean).....	93	87	138	60	94	50	27	85	141	130	144	135	60	91	15	96
23. Number of months left to serve on current sentence (median).....	12.4	9.4	11.8	10.6	10.0	11.7	19.2	15.5	12.1	9.2	15.8	12.0	22.5	17.5	10.0	13.7
24. With a detainee (percent).....	12	4	7	17	13	38	13	19	21	9	29	24	10	36	30	38
25. Custody (percent):																
Close.....	90	82	93	83	88	100	93	96	90	96	94	85	100	91	90	77
Medium.....	9	17	7	17	13	0	0	4	7	3	0	12	0	9	10	23
27. Principal work in prison (percent):																
Labor.....	26	36	41	33	31	0	7	26	38	27	29	26	30	36	30	31
General maintenance.....	19	14	7	10	13	25	13	7	21	12	12	12	20	18	10	15
Kitchen.....	12	5	10	27	25	13	13	22	0	12	12	18	30	9	0	8
Clerical.....	18	14	10	17	19	13	47	19	17	18	18	18	0	9	20	15
Other.....	25	32	31	13	13	51	21	25	24	30	30	27	20	27	40	31
28. Behavior record in prison (weighted mean).....	-5	+3	-1.9	-5	-1.1	-1.0	+1.5	-1.2	-2.1	-2.5	-2.3	-1.5	-8	-1	+8	-1.5
29. Other diagnoses, physical handicaps, etc. ¹																

¹ Item 1, "subject number," item 3, "date," and item 26, "institutional residence," are omitted from original record sheet.

² Analyzed and distributed under groups "O" through "R," items 1-28.

TABLE 2.—*Scores on different items*

	B	C	D	E
	Individual-Results	Group-Judgment	Least Psychopathic	Most Psychopathic
Number of subjects.....	67	48	23	29
Part II. Forms of Psychopathic Behavior				
Primitive Modes of Behavior:				
Appetitive:	<i>Percentages</i>	<i>Percentages</i>	<i>Scores</i>	<i>Scores</i>
30. Predisposition to alcoholism.....	28	24	4	5
31. Predisposition to drug addiction.....	1	11	0	0
32. Sex.....	57	61	2	2
Egocentric:				
33. Egotism.....	57	39	1	11
34. Vanity and conceit.....	53	38	2	12
35. Selfishness.....	25	32	1	4
Bitter Emotional:				
36. Jealousy.....	51	37	4	7
37. Envy.....	29	42	2	5
38. Anger.....	65	50	4	13
39. Hate.....	51	37	3	13
Aggressive:				
40. Self-assertion.....	66	43	4	15
41. Domination.....	31	36	1	7
42. Quarrelsomeness.....	18	41	2	5
43. Pugnacity.....	48	42	4	11
44. Destructiveness.....	10	17	1	2
Inhumane:				
45. Meanness.....	28	26	1	6
46. Sadism.....	9	20	0	1
47. Cruelty.....	19	20	0	4
48. Ruthlessness.....	45	28	2	9
49. Brutality.....	3	13	0	1
50. Bestiality.....	1	9	0	0
Illegal Offenses and Antisocial Modes of Behavior:				
51. Against the person (homicide, assault, threat to do bodily harm).....	57	29	2	16
52. Property, gainful (burglary, forgery, larceny, robbery).....	75	54	13	19
53. Property, other (malicious mischief, trespassing).....	33	31	4	5
54. Sex morality (rape, crime against nature, prostitution, securing and transporting women for immoral purposes).....	55	47	3	4
55. Administration of government (escaping custody, falsely impersonating, resisting officer).....	57	34	7	11
56. Public health and safety (carrying concealed weapons, violating city ordinances, violating traffic laws).....	48	37	4	12
57. Sobriety and good order (disorderly conduct, drunkenness, vagrancy).....	60	48	7	13
58. Public policy (gambling, violating liquor laws).....	22	24	2	6
59. Children and prisoner's family (contributing to delinquency).....	18	22	0	4
60. Miscellaneous (delinquency, violating parole, violating United States postal laws).....	81	35	9	14
Part III. Traits and Characteristics of the Psychopath				
In regard to his psychopathic behavior:				
61. Impulsive rather than deliberate.....	70	50	7	15
62. Anomalous or self-thwarting.....	90	47	10	17
63. Poor insight into.....	70	54	7	14
64. Rationalizes.....	48	58	4	10
65. Not easily improved by punishment.....	78	58	8	16
66. Responsible for most of.....	90	65	9	8
Attitude and rationalization:				
67. Strongly disliked the authority of one or both of his parents.....	61	35	8	13
68. Antagonistic towards authority.....	60	61	8	16
69. Does not care.....	64	44	8	14
70. Tendency to blame others for most of his troubles.....	45	39	5	8
71. Suspicious.....	54	49	6	12
72. Censorious rather than compassionate.....	49	46	4	8
73. Feelings of revenge.....	49	46	4	15
74. Tendency to smooth over his past difficulties. Judgment and wisdom.....	63	48	8	12
75. Poor judgment and common sense.....	84	45	9	15

TABLE 2.—*Scores on different items—Continued*

	B	C	D	E
	Individual- Results	Group- Judgment	Least Psy- chopathic	Most Psy- chopathic
Number of subjects.....	67	48	23	29
Part III. Traits and Characteristics of the Psychopath— Continued				
In regard to his psychopathic behavior—Con.	<i>Percentages</i>	<i>Percentages</i>	<i>Scores</i>	<i>Scores</i>
76. Easily influenced.....	42	58	7	5
77. Hasty decisions.....	69	57	7	13
78. Ineffective consideration of consequences.....	78	51	9	15
79. Short term values.....	60	64	6	8
80. Insufficient social valuation.....	66	43	6	14
81. Intolerant.....	30	50	0	10
82. Somewhat fanatical.....	10	22	0	4
Other cognitive functions:				
83. Changeable philosophy of life.....	60	34	9	12
84. Lack of fixity of purpose.....	49	42	6	11
85. Deductive rather than inductive.....	56	40	3	12
86. Argumentative.....	37	51	5	6
87. Poor sense of humor.....	25	27	2	5
88. Ganser's symptom.....	10	27	1	1
Affective functions:				
89. Feelings of inferiority-superiority.....	66	47	7	8
90. Capacity for affection and object-love.....	81	53	6	12
91. Undisguised and outwardly directed emotional reactions.....	63	57	4	8
92. Explosive.....	57	35	3	12
93. Anxiety.....	66	34	10	7
94. Dulling of some feelings, emotions, and sentiments.....	30	29	6	4
95. Unappreciative.....	25	42	1	4
96. Easily bored.....	40	47	6	7
Morality and integrity:				
97. Poor sense of fairness and justice.....	51	41	4	12
98. Poor sense of duty and obligation.....	55	47	5	11
99. Untruthful.....	36	57	4	16
100. Not concerned over interests and welfare of other people.....	49	49	6	12
Conflict and conscience:				
101. Poor conscience.....	48	42	3	11
102. Little sense of guilt.....	52	47	5	12
103. Has not given much thought to the problem of moral control.....	51	49	5	11
Outside adjustment:				
104. Poor adjustment.....	73	46	13	16
105. Poor school adjustment.....	45	46	7	9
106. Unstable vocationally.....	63	48	9	14
107. Migratory tendency.....	57	42	8	11
Miscellaneous:				
108. Extraverted.....	46	56	3	17
109. Unsportsmanlike.....	0	31	1	0
110. Impatient.....	72	54	6	12
111. Nervous.....	55	38	8	7
112. Exhibitionistic.....	31	41	2	4
113. Noisy and boisterous.....	35	40	2	8
114. Makes threats.....	34	34	1	9
115. Has never made a serious attempt at suicide.....	85	84	9	8

items on "personal data" (1-29) and some of the "forms of psychopathic behavior" (items 30-60) are symptoms of the psychopath.

In the case of each subject, an attempt was made to obtain as accurate and reliable information as possible on each of the 115 items. The answers to the "personal data" (items 1-29) were recorded in spaces provided for this purpose in a prepared form. In parts II and III (items 30-115), the item was checked if it applied to or was true of the subject. Some account was taken of the subject's own opinion, as well as the opinions of his more critical relatives, friends, and acquaintances. The item was double-checked if it was

strong, outstanding, or important in the life of the subject. The item was questioned when there seemed to be a reasonable doubt. If there was positive evidence that the item did not apply to, or was not true of, the subject, the item was not marked in any way.

The marks which were used had a somewhat different meaning in the case of "illegal offenses and antisocial modes of behavior" (items 51-60). Several specific offenses are listed under each of these items. If the subject had committed only one of the specific offenses under item 51 (homicide, assault, etc.), for example, this item was checked once; and if he had committed two or more of these specific offenses, this item was checked twice. These check marks were based on the specific offenses which the subject had actually committed and for which he could have been arrested regardless of whether or not he had been suspected, accused, arrested, tried, or convicted in connection with the specific offense in question.

Items 61-66 were checked only on the basis of the particular "forms of psychopathic behavior" (items 30-60) which had just been found to be present in each individual subject.

A record was also made of several other details which are not shown in the accompanying tables. The I. Q.'s of a few individuals of borderline intelligence were recorded under item 7. For those subjects who had been in some kind of military service, the type of discharge was noted in connection with item 16. Under item 29 a record was made of some of the more important medical diagnoses, a history of syphilis, a history of serious head injury, any psychotic or neurotic symptoms, etc. In connection with item 32, "sex," a note was made of whether the subject was normal, bisexual, active homosexual, passive homosexual, or mixed homosexual.

PROCEDURE WITH INDIVIDUAL SUBJECTS

The following detailed procedure was used in the case of each individual subject:

- (1) A careful study was made of the subject's central file record, and about one-third of the items could usually be filled in or checked in this way. The author attempted to form as accurate an impression as possible of the life history and personality characteristics of the subject.

- (2) The subject was interviewed immediately after his central file record had been studied. The general purpose of the study was explained, and special emphasis was placed on the fact that the primary interest was in having all of the data as accurate as possible.

- (3) The subject was reminded of the fact that the author was not connected in any way with the administration of the institution, and he was assured that all of his answers would be off the record. An

attempt was made to be understanding, uncritical, and not surprised or shocked at anything. The subjects were urged not to try to make a good or a poor impression; and they told a great many things about themselves which were very much against them and which were not in their official records. The cooperation of the subjects, while not all that could be desired in a few cases, was much more frank and honest than could be obtained by the average official or professional employee.

(4) During the interview, the subject had a blank copy of the record sheet in front of him so that he could follow the different items. The items were taken in order, all of the questions were asked orally, and all of the answers, grades, and marks were recorded. An attempt was made to phrase each question as clearly and as unambiguously as possible. Some of the questions were somewhat personal, and a few questions required a considerable amount of explanation.

(5) With most of the subjects, 3 or 4 hours were generally required to carry out all of the details of the procedure, but it was frequently not possible to obtain the individual results from a single subject in the time which was available in a morning or afternoon.

SUBJECTS

The inmates of the Psychopathic Unit were given an opportunity to volunteer as subjects, and more subjects volunteered than could be used. No persons were used as subjects who could not understand English, or who were feeble-minded, clearly psychotic, or acutely ill. Complete results were obtained on 101 subjects, ranging in age from 17 to 35 years.

After the detailed results had been obtained by the individual procedure described above, several groups of subjects were formed. The data on these groups are given in tables 1 through 4.

All of the subjects in group C (table 2) are also included in group B. In the five groups D, E, G, H, and I, no subject in any one group is included in any one of the four other groups. None of the homosexual subjects (G, H, and I) is included in the "least psychopathic" (D) or the "most psychopathic" (E) groups. The same subject is frequently included in more than one group in the case of groups F and J to R. The manner of selecting subjects for groups B and C will be described below in connection with table 2. Excluding the homosexual subjects (G, H, and I), group D is made up of those who had been given the smallest number of check marks on the "forms of psychopathic behavior" (table 2, part II, items 30-60), and group E is made up of those subjects who had been given the largest number. Group F includes all of the subjects for whom alcohol had been a definite habit or problem, and who were checked on item 30, "predisposition to

TABLE 3.—Results for different groups of subjects

	A	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	Number of sym- ptoms
	All subjects	Least psycho- pathic	Most psycho- pathic	Alcoholic	Bisexual	Active homo- sexual	Passive homo- sexual	Egocentric	Bitter emo- tional	Aggressive	Inhumane	Criminal	Psychotic sym- ptoms	Neurotic symptoms	History of syphilis	History of seri- ous head in- jury	
Number of subjects	101	23	29	30	16	8	15	27	29	33	17	34	10	11	10	13	
Part II. Forms of Psychopathic Behavior																	
Primitive Modes of Behavior:																	
30. Appetitive:																	
31. Predisposition to alcoholism	(5)	3.5	5	2 [15]	8	6	2	5	4	5	4	6	7	8	6	8	0
32. Sex	(8)	2.4	2	3 (9)	14	4	0	0	0	1	0	1	1	1	2	1	0
33. Egocentric:							[18]	(8)	7	7	(8)	(8)	(9)	5	(9)	(9)	7
33-34. Egotism, vanity, and conceit	(8)	2.2	*12	8	7	10	6	[16]	12	11	15	11	10	9	7	9	10
35. Selfishness	(3)	1.3	4	3	3	3	2	[9]	3	4	8	4	8	6	2	3	2
36. Jealousy	(7)	4.1	7	8	5	12	10	7	[11]	8	7	8	5	7	7	6	1
37. Envy	(3)	2.4	5	4	3	4	3	6	[9]	2	4	3	5	4	3	6	0
38. Anger	(9)	4.1	15	10	12	9	4	12	[17]	15	14	12	12	8	9	12	8
39. Hate	(7)	2.6	13	6	8	5	3	11	[15]	12	12	11	11	6	7	9	8
40. Aggressive:																	
40. Self-assertion	(9)	4.3	15	10	9	11	4	14	14	[17]	15	12	12	11	8	11	4
41. Domination	(4)	1.3	7	4	3	4	1	7	9	[9]	6	5	4	4	2	2	0
43. Pugnacity	(7)	3.9	11	6	8	6	3	8	11	[14]	12	11	6	1	4	6	1
45. Inhumane:																	
45. Meanness	(3)	.9	6	3	5	3	1	7	5	6	[13]	7	6	4	3	2	0
47. Cruelty	(2)	0	4	2	3	3	1	5	4	4	[11]	5	5	4	3	2	0
48. Ruthlessness	(5)	2.0	9	4	7	8	1	9	8	9	[15]	9	6	7	3	9	7
Illegal Offenses and Antisocial Modes of Behavior:																	
51. Against the person	(8)	1.7	16	8	9	6	3	12	13	[12]	16	[6]	12	6	7	7	7
52. Property, gainful	(15)	13.0	19	16	16	15	6	17	19	19	19	[19]	16	16	15	19	7
53. Property, other	(4)	3.5	5	3	4	5	1	4	7	6	6	[7]	7	7	3	4	0
54. Sex morality	(6)	3.0	4	2	4	5	5	7	6	5	8	[8]	7	8	7	7	0
55. Administration of government	(8)	7.0	11	9	11	6	4	10	11	12	14	[14]	11	10	11	9	0
56. Public health and safety	(7)	4.3	12	8	8	8	1	10	9	10	13	[13]	10	5	8	8	1
57. Sobriety and good order	(10)	7.0	13	16	14	8	5	11	11	11	12	[14]	15	13	11	12	0
58. Public policy	(4)	2.2	6	5	4	8	0	5	4	6	5	[7]	5	3	5	3	1

59. Children and prisoner's family.....	(2)	4	2	2	1	2	4	3	3	5	3	2	2	0
60. Miscellaneous.....	(12)	9.1	14	11	14	14	13	14	14	17	14	12	13	0
Part III. Traits and Characteristics of the Psychopath														
Attitude:														
68. Antagonistic towards authority.....	(11)	7.8	16	10	12	9	13	16	17	17	15	10	10	0
81. Intolerant.....	(4)	0	10	4	3	1	7	7	9	7	7	3	5	2
73. Feelings of revenge.....	(8)	3.9	15	7	9	4	8	13	11	13	12	6	6	5
73. Cognitive Functions:														
84. Lack of fixity of purpose.....	(8)	6.1	11	7	10	4	5	11	12	12	10	7	11	0
78. Ineffective consideration of consequences.....	(12)	8.5	15	12	16	14	6	13	16	17	16	14	12	0
85. Deductive rather than inductive.....	(7)	3.0	12	5	6	5	12	12	12	9	10	6	6	7
101. Poor conscience.....	(7)	3.0	11	7	10	8	1	10	10	16	12	6	7	8
97. Poor sense of fairness and justice.....	(8)	3.5	12	8	9	13	1	11	11	14	12	8	9	8
100. Not concerned over interests and welfare of other people.....	(9)	5.7	12	10	10	8	5	12	14	15	13	8	12	0
Miscellaneous:														
106. Unstable vocationally.....	(10)	8.7	14	13	13	9	5	14	13	12	17	13	12	0
114. Makes threats.....	(5)	9	9	5	6	3	3	7	10	9	10	3	4	0
61. Impulsive psychopathic behavior.....	(11)	7.2	15	13	11	13	6	12	15	14	14	14	10	0
63. Poor insight into his psychopathic behavior.....	(10)	6.7	14	10	12	9	3	12	13	14	15	13	9	0
64. Rationalizes his psychopathic behavior.....	(6)	3.9	10	8	9	9	1	8	9	9	9	8	6	0
Average (omitting scores in brackets).....	6.9	4.0	10.0	7.2	8.0	7.1	3.5	9.2	9.7	9.5	11.1	7.2	6.9	7.8
Median (omitting scores in brackets).....	7.1	3.5	11.0	7.3	8.4	7.5	3.3	9.1	10.7	10.3	12.3	7.3	7.0	7.7
Number of symptoms.....			12	3	4	5	0	9	9	9	14	1	1	5
														93

¹ Scores in group D, printed in bold face, used as standard of comparison for all other groups of subjects, E to R.

² Scores in brackets are those where the particular item was the basis employed in selecting subjects for that particular group.

³ Scores of item 32, "sex," in parentheses, are nonsymptomatic and are not used further.

⁴ Scores in groups E to R, printed in bold face, represent items regarded as symptomatic of that group of subjects.

alcoholism." Subjects were included in groups G, H, or I if they were bisexual, active homosexual, or passive homosexual, respectively.

Subjects were selected for the five groups J to N on the basis of the slightly revised list of "forms of psychopathic behavior" shown in part II (items 30-60) of table 3. An individual was included in group J, "egocentric," if he had been given a total of at least two checkmarks on the two items, counting the single and double checkmarks, and he was included in group K, "bitter emotional," if he had been given at least four checkmarks on the four items, etc.

Individuals were included in the groups of subjects with "psychotic symptoms" (O), "neurotic symptoms" (P), a "history of syphilis" (Q), or a "history of serious head injury" (R), on the basis of notes made in connection with item 29, "other diagnoses," on the original record sheet. A serious head injury was one which had had an appreciable influence on the personality and behavior of the subject.

In tables 1, 2, and 3, the items of the record sheet and the sub-items are listed in the first column, and the results for the different groups of subjects are given in the following columns. In these three tables, the numbers accompanying the items correspond with the numbers given in the original record sheet for the different items, and the letters at the top of the columns are given for ease in reference.

PERSONAL DATA

A considerable amount of detailed information on "personal data" (items 1-29) was collected on all of the subjects, and these results are given in table 1. In this table, the statistical measure used for each item is indicated in parentheses following the name of the item.

The median age (item 2) of all of the subjects (column A) was 23.3 years. The principal races or nationalities represented (item 4) were Irish, English, and German. About three-tenths of the "most psychopathic," "egocentric," "bitter emotional," "aggressive," "inhumane," and "criminal" subjects professed no religion (item 5). The median school grade reached by all of the subjects was 8.4. One-fourth of all of the subjects had had no outside vocation. One out of every 17 of all of the subjects was married and not divorced, and three-fourths of the subjects had never been married. One-sixth had had a normal home, one-third had had a stepfather or stepmother, one-fifth were antagonistic to their fathers, and one-fifth had been emotionally rejected by their parents (items 7, 8, 9, 11, 11a).

In the case of items 11a, 13, and 28, the four ratings of "good," "fair," "poor," and "very poor" on the original record sheet were for statistical purposes given respective values of +3, +1, -1, and -3; in the case of item 12, the five ratings of "superior," "comfortable," "average," "marginal," and "submarginal" were given respective

values of +2, +1, 0, -1, and -2; and the weighted means (table 1) were calculated on the basis of these numerical values. The weighted mean for the emotional environment of the home (item 11a) was -0.5 for all of the subjects. In early associates (item 13), the score for the "least psychopathic" subjects was better than the score for the "most psychopathic" subjects.

The median age on leaving home (item 14) for all of the subjects was 14.8 years; the "inhumane" subjects left home the earliest, and the "passive homosexuals," the latest. The median age at which delinquency began (item 15) was 13.2 years for all of the subjects, and delinquency began earliest in the case of the "inhumane" subjects. For all of the subjects, one-half had been dishonorably discharged from some kind of military service, one-half had been first committed to a juvenile institution, the median number of convictions was 2.7, and the median number of years incarcerated was 3.7 (items 16-19). The Dyer Act was the most common current basis for conviction for all of the subjects, and was the basis much more frequently for the "most psychopathic" subjects than for the "least psychopathic" subjects. For all of the subjects, the median number of years of the current sentence was 3.7, the mean number of days good time lost was 93, the median number of months left to serve on the current sentence was 12.4, one-tenth had a detainer, and nine-tenths were in close custody (items 21-25). The behavior record in prison (item 28) was much worse for the "most psychopathic" than for the "least psychopathic" subjects.

A careful examination of table 1 will show that many of these results are relatively more favorable for the "passive homosexual" subjects.

The most important finding in these results, even if it is a rather surprising one, is that most of these items of "personal data" are not reliably different for the "most psychopathic" and "least psychopathic" subjects, and most of these items are therefore of little or no value in the differential diagnosis of the psychopath.

A study of the results in table 1 will show that the items in this table which are the most symptomatic of the psychopath are the following:

11a. Poor emotional environment of home.

13. Poor early associates.

28. Poor behavior record in prison.

The results for these three items are much more unfavorable for the "most psychopathic" than for the "least psychopathic" subjects. These results are also relatively unfavorable for the "egocentric," "bitter emotional," "aggressive," "inhumane," "criminal," "psychotic," and "head injury" groups; and relatively favorable for the

"passive homosexual" and "neurotic" groups, and subjects with a "history of syphilis."

SCORES ON DIFFERENT ITEMS

In order to determine which of the items in parts II and III are most symptomatic of the psychopath, we have given in table 2 the results on items 30-115 for four groups of subjects, B, C, D, and E. In table 2 the values given in columns B and C are percentages, and the values given in columns D and E are scores.

The procedure used in calculating the percentages given in column B, "individual results," was as follows. The 67 subjects in this group included all of the more intelligent subjects who had been in the Psychopathic Unit for more than a few weeks. For each of items 30-115 we calculated the percentage of subjects (out of a total of 67) for whom each item had been checked once or twice; and these percentages are given in column B. In this individual-results calculation, item 30, "predisposition to alcoholism," for example, was checked for 28 percent of the 67 subjects.

The procedure used in obtaining the percentages given in column C, "group judgment," was as follows:

(1) A list of the 67 subjects included in group B was mimeographed; and the name, number, and residence of each subject was given on the mimeographed sheet.

(2) As many as possible of the 67 inmates in group B were assembled, and each of the subjects present was given a copy of the mimeographed list of subjects and a copy of the original record sheet, with which he was already familiar.

(3) Each subject present checked the name of each of the 67 inmate subjects whom he either knew or knew a good deal about, omitting his own name.

(4) Each subject was asked to consider only the inmates whose names he had just checked. For each of the items 30-115, the subject then estimated the number of inmate subjects out of every 10 to whom the item applied or for whom the item was true. If, for example, one of the subjects present knew 50 of the inmates included in the group, and if he estimated that 25 of these 50 inmates were prone to anger (item 38), then the estimate of this subject for this item was 5.

(5) In this procedure, the items were taken one at a time, and whenever it seemed desirable the author explained the meaning of the item just before it was judged by the subjects.

A total of 48 subjects took part in this group-judgment procedure. The judgments of the subjects ranged from 0 to 10. The mean of these judgments was calculated for each of the items, and these

means were changed into percentages. These percentages are given in column C of table 2. According to the group judgment of the 48 subjects, for example, 61 percent of all of the subjects are sexual deviates (item 32), and 50 percent are prone to anger (item 38).

The values in columns B and C give an approximate but significant comparison between B, the percentage of times each of these items was checked in the individual procedure which we used, and C, the percentage of times the group of 48 subjects thought that each of these items should have been checked. In the procedure which we used, 28 percent of the group of 67 subjects were checked on item 30, for example, and the C group of 48 subjects thought that 24 percent of the subjects should have been checked on this item. An examination of the pairs of B and C percentages will show that both percentages are sometimes high, in several cases both are low, and in some cases the two percentages differ considerably from each other. The correlation between the B and C percentages is $+0.62$.

Many of the items 30-115 are not flattering to the subjects; and it seems probable that the individual procedure which we used may have been faulty or limited especially in the case of those items where the C percentage was considerably higher than the B percentage.

The procedure used in calculating the scores in table 2 for the "least psychopathic" (D) and "most psychopathic" (E) subjects was as follows. In the individual procedure with each subject, each item was checked, double-checked, questioned, or left blank; and for statistical purposes these marks and grades were given values of 1, 2, $\frac{1}{2}$, and 0, respectively. Using these values, a mean score was calculated for each item and for each of the two groups of subjects D and E; and this mean score was multiplied by 10 to avoid fractions. The theoretical range of these mean scores is from 0 to 20, and a high score indicates that the item was strong or prominent for the group in question.

Each of the items 30-115 in table 2 was considered to be symptomatic of the psychopath if it met the following criteria:

- (1) The score for the "most psychopathic" subjects (E) should be much higher than the score for the "least psychopathic" subjects (D).
- (2) The B and C percentages should be at least moderately high.
- (3) The B and C percentages should not indicate that there was too large an error in the results obtained by our individual procedure.

Item 39, prone to hate, for example, is symptomatic of the psychopath because the score of 13 for the "most psychopathic" subjects is much higher than the score of 3 for the "least psychopathic" subjects, and both the B and C percentages are moderately high. Item 44, however, is not symptomatic of the psychopath because the D and E scores are about the same.

Proceeding in this detailed fashion, we have used the results of table 2 in making a careful revision of items 30-115. We have made a few changes in the "forms of psychopathic behavior" (items 30-60), and have radically shortened the list of alleged "traits and characteristics of the psychopath" (61-115). All of these changes may be seen by making a detailed comparison between the items of table 2, which we have just discussed, and the items of table 3, which will be described in the following section.

RESULTS FOR DIFFERENT GROUPS OF SUBJECTS

The results on the revised and shortened list of items for all of the groups of subjects except B and C are summarized in table 3. The results for groups D and E are repeated in this table for comparative purposes. The procedure used in calculating the scores in table 3, with the exception of the last column and the last three rows, was the same as that described in the preceding section for groups D and E. The theoretical range of the scores in the body of the table is from 0 to 20, and the higher the score the more prominent the item. In part III of table 3, the "traits and characteristics of the psychopath" which have been retained have been regrouped.

The scores for the "least psychopathic" (D) subjects are the standard of comparison for all of the other groups of subjects E to R. These D scores are carried out to one decimal place, and they are printed in bold face. The scores for the "least psychopathic" (D) and "most psychopathic" (E) subjects are the most important results in the table. The scores for "all subjects" (A) are of value only in giving some additional information on the whole group of 101 subjects.

It may seem that we have given too much prominence to the sexual deviates by dividing these subjects into three groups, G, H, and I, but it would have been misleading to have included all of the sexual deviates in a single group.

The subjects in the "alcoholic" (F) group were selected on the basis of the check marks for item 30, "predisposition to alcoholism"; and the score of 15 for group F, item 30, has been set off in brackets in table 3. All of the scores in table 3 have been set off in brackets where particular "items" were the basis employed in selecting subjects for "groups of subjects"; and these scores in brackets are not used in judging the value of different items as symptoms of different groups of subjects.

In order to determine which of the items given in the first column of the table are symptomatic of the groups of subjects shown in the top row of the table, each of the scores for groups E to R has been compared with the corresponding standard score for the "least

psychopathic" (D) subjects. After taking various statistical matters into consideration, we adopted the criteria that a given item will be regarded as symptomatic of a group of subjects if the score in question (1) is at least three times the standard D score, and (2) has a magnitude of at least eight.

The score of 15 for group E, item 38, for example, meets the criteria because the score of 15 is at least three times the standard D score of 4.0, and the score of 15 also has a magnitude of at least eight. All of the scores for groups E to R in table 3 which meet these criteria, and which indicate that certain items are symptomatic of certain groups of subjects, have been printed in bold face.

There are 546 scores for groups E to R in the body of table 3, counting the scores in brackets; and the median of these scores is 8.4. There are 93 scores which indicate that an item is symptomatic of one of the groups of subjects E to R. The total number of items which are symptomatic of each of the groups of subjects E to R is shown in the last row of the table, "number of symptoms"; and the total number of the groups of subjects E to R for which each of the items is a symptom is shown in the last column of the table, "number of symptoms."

In the third and second to the last rows of table 3, we have given the average and median values for each group of subjects, omitting the scores set off in brackets. These values are based on the original scores which were carried out to one decimal place.

From a knowledge of the inmates included in the "most psychopathic" (E) and "least psychopathic" (D) groups of subjects, and in view of the systematic procedure used, it is certain that the individuals included in group E were psychopaths and that the individuals included in group D were not psychopaths. In table 3, the results for the E and D subjects show that 12 of the items are valid symptoms of the psychopath; and a comparison of the results for the 13 groups of subjects F to R with the results for the "most psychopathic" (E) subjects will show the extent to which each of the 13 groups F to R has the general symptoms of the psychopath.

There is a limitation in the results for item 32, "sex," and for the three groups of sexual deviates (G, H, and I) which is due to the policy of selecting criminal and psychopathic sexual deviates for transfer to the Psychopathic Unit, and to our procedure in forming the different groups of subjects from a common pool. Because of these factors of selection, and inasmuch as subjects included in the three groups of sexual deviates (G, H, and I) were sometimes also included in groups F and J to R, the scores in table 3 which seem to indicate that item 32, "sex," is a symptom of some of the groups of subjects, do not have

the meaning which they appear to have. For this reason, the apparently symptomatic scores of item 32, "sex," have been placed in parentheses, and these scores will not be considered further.

In spite of the factors of selection which have just been mentioned, the "bisexual" (G) subjects, in comparison with group E, have only four of the symptoms of the psychopath, the "active homosexuals" (H) have only three, and the "passive homosexuals" (I) have none. The "active homosexuals" (H) also show in our results two symptoms which are not prominent symptoms of the psychopath: item 36, "jealousy," and item 58, "offense against public policy." The central tendencies of the scores, shown at the end of table 3, are slightly lower for the "passive homosexuals" (I) than for the "least psychopathic" (D) subjects.

These results show that the three groups of homosexual subjects do not have the outstanding symptoms of the psychopath. The same is also true of the "alcoholic" (F) subjects, who have only two of the prominent symptoms of the psychopath.

The results, however, are quite different for the next 6 groups of subjects, J to O. The outstanding symptoms of each of these groups correspond in a striking fashion with the outstanding symptoms of the psychopath, and the scores for these 6 groups of subjects show that there is a considerable amount of consistency in our results. The "egocentric" (J) subjects have all of the 12 outstanding symptoms of the psychopath (E, table 3) except 3: "intolerant," "feelings of revenge," and "makes threats"; but the scores for these 3 symptoms come very close to meeting the criteria which we adopted for outstanding symptoms. The "bitter emotional" (K) subjects have all of the outstanding symptoms of the psychopath (E) except one, "intolerant"; and the score for this symptom comes very close to meeting the criteria for outstanding symptoms. Similar results were obtained for the "aggressive" (L) and "inhumane" (M) subjects. The central tendencies of the scores, shown at the end of table 3, are higher for the "inhumane" (M) subjects than for the "most psychopathic" (E) subjects. From the point of view of criminology and penology, it is also interesting that the "criminal" (N) group of subjects have all of the symptoms of the psychopath except two: "self-assertion," and "intolerant"; but the scores for these two symptoms almost meet the criteria of symptoms. The subjects with "psychotic symptoms" (O) have all of the symptoms of the psychopath except three: "self-assertion," "ruthlessness," and "intolerant"; and the scores for these three symptoms also come very close to meeting the criteria of symptoms. The "egocentric" (J), "bitter emotional" (K), "aggressive" (L), and "criminal" (N) subjects do not show in our results any symptoms which are not also symptoms of the psychopath.

Item 81, "intolerant," is the symptom of the psychopath for which the scores of groups J to O most frequently approximated, but did not quite reach, the criteria of symptoms. For this item, a score of 8 would have met the criterion, and the respective scores obtained for groups J to O were 7, 7, 9, 7, 7, 7.

The results of the last three groups of subjects P, Q, and R are quite different from the results of the six groups of subjects J to O which have just been described. The subjects with "neurotic symptoms" (P) have only one of the prominent symptoms of the psychopath: "egotism, vanity, and conceit." It may be noted that as far as these results and these symptoms are concerned, the subjects with "psychotic symptoms" (O) are similar to psychopaths, but the subjects with "neurotic symptoms" (P) are not similar to psychopaths. The subjects with a "history of syphilis" (Q) do not have any of the prominent symptoms of the psychopath. The subjects with a "history of a serious head injury" (R) have four of the prominent symptoms of the psychopath: "egotism, vanity, and conceit"; "anger"; "hate"; and "ruthlessness"; but several of the other scores for these head injury cases almost meet the criteria of symptoms.

CORRELATIONS BETWEEN THE SCORES OF DIFFERENT GROUPS OF SUBJECTS

In order to secure some further information on the similarities and differences which exist between the scores for different groups of subjects as shown in table 3, we have calculated coefficients of correlation between (1) the scores of each of the 15 groups of subjects D to R, and (2) the scores of each of the 14 remaining groups of subjects. In calculating these coefficients of correlation between the paired scores in the body of table 3, we have used the original scores which were carried out to one decimal place.

The 105 intercorrelations between the scores of the different groups of subjects D to R are given in table 4. The range of these correlations is from $+.40$ to $+.93$, the mean of these correlations is $+.73$, and the median is $+.74$.

In the preceding section special attention was called to the similarities between the highest scores and symptoms of the "most psychopathic" (E) subjects, on the one hand, and on the other hand the highest scores and symptoms of six other groups of subjects: "ego-centric," "bitter emotional," "aggressive," "inhumane," "criminal," and subjects with "psychotic symptoms." The intercorrelations between the scores of these seven groups of subjects (E, J, K, L, M, N, and O) have been set in italics in table 4. Eighteen of the 105 correlations in the whole table have a value of $+.85$ or above, and 11 of these 18 correlations are italicized. The mean of the 84 correla-

TABLE 4.—Correlations between the scores of different groups of subjects¹

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
	Least psychopathic	Most psychopathic	Alcoholic	Bisexual	Active homosexual	Passive homosexual	Egocentric	Bitter emotional	Aggressive	Inhumane	Criminal	Psychotic symptoms	Neurotic symptoms	History of syphilis	History of serious head injury
D. Least psychopathic															
E. Most psychopathic															
F. Alcoholic		0.68											0.80	0.84	0.82
G. Bisexual			.67										.68	.72	.72
H. Active homosexual				.83									.87	.83	.83
I. Passive homosexual				.69	.66								.80	.87	.83
J. Egocentric				.80	.46	.58							.71	.74	.74
K. Bitter emotional					.76	.45	.63	.72					.62	.65	.64
L. Aggressive					.72	.63	.73	.74	.74				.77	.71	.71
M. Inhumane						.58	.55	.63	.50	.40			.62	.62	.62
N. Criminal							.55	.84	.83	.75	.86		.78	.76	.76
O. Psychotic symptoms									.93	.76	.86	.80	.68	.70	.70
P. Neurotic symptoms													.74	.85	.82
Q. History of syphilis													.74	.70	.79
R. History of serious head injury													.74	.70	.82

¹ Scores in italics represent intercorrelations between groups E, J, K, L, M, N, O.

tions not italicized is $+.71$, and the mean of the 21 correlations which are italicized is $+.84$.

The relationship between the scores for the different groups of subjects D to R in table 3 has also been tested further by a simple statistical method. We have expressed each of the scores for these groups of subjects as a plus or minus deviation from the average of the group of subjects shown at the end of table 3, and have calculated the percentage of like-signed pairs for each of the 105 pairs of scores. The percentage of like-signed pairs support in an even more striking manner the conclusions which have been reached in the preceding section in regard to the resemblances between the scores and symptoms of psychopaths and the scores and symptoms of the six groups of subjects J to O.

THE SYMPTOMS OF THE PSYCHOPATH

In the present study we have secured negative as well as positive results on a number of alleged traits and characteristics of the psychopath. Although the principal emphasis has been on positive findings, an examination of tables 1 and 2 will show that reliable negative results were also obtained on a number of items. The following are some examples of items which in our results were found not to be symptomatic or diagnostic of psychopathic personality:

9. Marital history.
14. Age on leaving home.
15. Age delinquency began.
17. Type of institution to which first committed.
70. Tendency to blame others for one's troubles.
76. Easily influenced.
79. Short term values.
86. Argumentative.
90. Incapacity for affection and object-love.
93. Anxiety symptom.
96. Easily bored.
111. Nervous symptom.
115. No serious attempt at suicide.

The positive results which show that certain traits are valid symptoms of the psychopath have already been discussed in connection with tables 1, 2, and 3; and in describing the results of tables 2 and 3, some criteria of selection were used in order to call special attention to the most prominent individual symptoms. The criteria of selection, however, are arbitrary, and all of the results differ in degree. There is positive evidence that several of the items are symptoms of the psychopath, even though the scores do not fully meet the criteria, and some of these positive items are closely related in meaning.

In view of the quantitative and relative nature of the results, we have made a further detailed study of the positive items, and have carefully considered the amount of overlapping and similarity in meaning between all of the positive items. Proceeding in this way, we have selected and phrased what appear to be the best symptoms of the psychopath; and these symptoms are given in table 5. An attempt has been made to phrase these symptoms in such a way that there will be as little overlapping in meaning as possible, and the 20 symptoms have been grouped for convenience in 5 groups. The results of our study indicate that each of these symptoms is a valid symptom of the psychopath.

TABLE 5.—*The symptoms of the psychopath*

History:	Cognition—Continued
1. Poor emotional environment of early home	11. Poor insight
2. Poor early associates	12. Paranoid tendency
3. History of poor behavior	Affection:
4. History of antisocial conduct	13. Prone to anger
Morals:	14. Prone to hate
5. Poor moral sense	15. Hostile
6. Poor sense of fairness and justice	16. Mean or ruthless
7. Poor conscience	Conation:
8. Not concerned over interests and welfare of other people	17. Self-assertion
Cognition:	18. Impulsive
9. Egocentric	19. Anomalous and self-thwarting behavior
10. Deductive rather than inductive	20. Threatening or pugnacious

In diagnosing a given person as a case of psychopathic personality, it is desirable to have in mind a clear concept of the general nature of this condition, but this is the subject of a separate paper which is being published currently. It may be remarked, however, that the symptoms of the psychopath in table 5 are human and natural and practically coincide with the forms of behavior which the leaders of the great world religions have urged man to attempt to control. According to our concept, psychopathic behavior is primitive and antisocial, and a psychopath is a person who has a serious lack of ability to control several of these primitive antisocial modes of behavior.

In addition to having in mind a clear concept of the psychopath, a concrete list of symptoms will be of practical value. In judging the extent to which a given person is psychopathic, account should be taken of the strength and prominence of the symptoms, as well as the number of different symptoms. Some psychopaths have all of these symptoms, and other psychopaths have a smaller number of these symptoms but in a more pronounced form. It would seem that for a person not to have any of these symptoms even to a mild degree, it would be practically necessary for him to be a saint. The great majority of the population, with their different patterns and groupings of a limited number of symptoms, fall somewhere between

the psychopath and the saint. It will be practical and convenient to diagnose an individual as a case of psychopathic personality if he has a reasonable number of these symptoms in a fairly pronounced form.

GASTROENTERITIS ABOARD SHIP¹

COMMON TYPES ENCOUNTERED, AND THE PREVENTION AND CONTROL OF OUTBREAKS

By WILLIAM A. MEYERS, Commander (MC), United States Naval Reserve

During 1945, a number of major outbreaks of "gastroenteritis" aboard ships in the Pacific Ocean Area were investigated. Several hundred ships of all types were also routinely inspected to check on general ship sanitation and on many minor outbreaks of food infection or food poisoning. From this experience the following high lights are presented.

COMMON TYPES OF OUTBREAKS ENCOUNTERED

The major epidemics of gastroenteritis which were investigated were attributable in approximately equal numbers to (1) *Shigella*, (2) *Salmonella*, and (3) "unknown cause" (probably a virus). Food intoxication due to *Staphylococci* was also probably fairly common, but since these outbreaks were usually mild and of short duration, very few were investigated. For this reason, it was not possible to estimate the frequency with which outbreaks of staphylococcal etiology occurred in proportion to "dysentery types" of gastroenteritis.

Outbreaks involving from 20 to 1,400 persons each were caused by *Shigella* of five different types. These were *Shigella flexneri* I, II, III, and VIII, and *Shigella alkalescens*. *S. flexneri* III was the most common type. There were two fatalities from these outbreaks. One ship was put out of service for 60 days, and many others were immobilized for shorter periods. The sources of infection were food-handler carriers on board, contaminated food eaten ashore, and convalescent carriers or cases transferred from a ship on which there was a current outbreak. The use of polluted sea water in the vegetable peelers was responsible for at least two of these outbreaks, resulting in a total of 500 cases, two deaths, and the loss of the services of two ships for a total period of 3 months. The foods eaten before an outbreak and subsequently discovered to have been contaminated were most frequently found to be meats and vegetable salads. Most types of *Shigella* dysentery were successfully treated with one of the sulfonamides in ordinary doses. However, a number of these organ-

¹ Condensed from BUMED NEWS LETTER, vol. 7, No. 12, June 12, 1946, by permission of the Navy Department.

isms exhibited sulfonamide resistance within a wide range, including even different strains of the same *S. flexneri* type of bacteria.

Outbreaks involving from 10 to 250 persons each were caused by *Salmonella* of more than ten different species. The symptoms were generally milder than in those outbreaks due to *Shigella*. The common foods infected were turkey, chicken, and salmon. Turkey was by far the most common offender. *Salmonella* were found to be relatively sulfaresistant.

In the examination of specimens of water from storage tanks of various ships, excessively high plate counts have been found in many of the samples. These counts revealed about 1,000 bacteria per cubic centimeter and were indicative of contamination of a serious degree. Chlorination of the ship's fresh water should be unhesitatingly recommended when contamination is suspected.

PREVENTIVE MEASURES

An educational program and thorough daily inspections by a medical officer familiar with the usual modes of disease dissemination will prevent the majority of these outbreaks. Most outbreaks were found to be due to improper handling of food, insanitary galley conditions, or a combination of these circumstances, all of which might well have been rectified by careful medical supervision. Inspections should be made at different times of the day so that all procedures carried on in the galley and other food-handling compartments can be carefully checked. Such routine inspections may be delegated to a hospital corps officer or corpsman, if necessary, but the medical officer himself should also frequently make the inspection.

Personnel and equipment concerned with milk and ice cream mixing should be as carefully checked as those in the galley. The proper cleaning of equipment and the handling of milk products requires a careful and detailed technique. Several outbreaks of streptococcal pharyngitis have been observed on ships due to lack of refrigeration of reconstituted milk for periods of 12 hours or more. In one such instance in which 45 percent of the ship's company became ill, the mess cook who prepared the milk mixture had a draining streptococcal abscessed tooth. One-third of these patients developed scarlatiniform rashes. A staphylococcic food poisoning due to infected ice cream was also investigated. The improper cleaning of equipment was the probable cause of this outbreak.

When the supply of fresh water permits, salt water should not be used in the galley or other food-preparation spaces for any purpose at any time. When it is not possible to do away completely with the use of sea water, it must be made certain that it is not used in any food-preparation spaces for any purpose whatsoever when in a harbor

or fleet anchorage, or when tied up alongside another ship. It must be kept in mind that after leaving a harbor or fleet anchorage, etc., the salt-water lines will contain contaminated water until they have been thoroughly flushed by uncontaminated open-sea water. *The use of contaminated salt water was the chief sanitary defect found aboard the ships studied.* The contaminated water used in vegetable peelers was undoubtedly the cause of two serious dysentery outbreaks. In one instance, the sea water was contaminated by one acute case aboard, and in the other, by a ship tied alongside. The use of contaminated salt water to scrub decks has been prohibited. It is believed that the only way to guard against the hazard of using contaminated salt water is permanently to disconnect all salt-water lines to the galley, vegetable peelers, etc.

The great majority of outbreaks of gastroenteritis are preventable by proper supervision. The most common points overlooked have been found to be:

1. Failure of routine inspection of hands (with especial attention to fingernails) of food handlers and the prompt removal of ill food handlers from duty.
2. Use of contaminated sea water in the vegetable peelers and on the decks of the galley, butcher shop, vegetable-preparation room, etc.
3. Improper technique of handling cooked fowl.
4. Holding food at galley temperatures too long.
5. Absence of soap from heads (latrines), and inadequate cleansing of hands of those involved in preparation and serving of foods.

CONTROL OF OUTBREAKS

When an outbreak of gastroenteritis occurs aboard ship, the cause should be established and brought under control as soon as possible. This can usually be accomplished by taking a history of each case. The use of previously prepared 4 x 5 cards for this purpose is recommended. The important points to be noted are: time of onset, symptoms, division of ship's company to which attached, and food eaten (all food eaten within the past 24 hours, or at least which meals were eaten in the previous 48 hours). It may be necessary to get a more detailed history when the cause is narrowed to one or two meals or foods.

The symptoms, incubation time, etc., should suggest a diagnosis of (1) chemical or staphylococcal toxin food poisoning, or (2) food infection due to *Shigella* or *Salmonella*. The incubation time of the first group is usually from $\frac{1}{2}$ to 5 hours, and of the second, usually from 12 to 72 hours. Those ill due to the first group (food poisoning) tend to have more nausea and vomiting, but less fever, than those ill due to food infection. Outbreaks due to a "virus" infection are

not explosive in character. When the responsible food is found, its preparation and handling should be carefully checked to determine the mechanisms of the outbreak.

A diagnosis of the type of infection or poisoning should be made, if possible, because control procedures differ, depending on the etiology. Food-poisoning outbreaks (staphylococcal enterotoxin or chemical) are most often self-limited. When the cause of the poisoning has been determined, measures to prevent continuance or recurrence should be instituted. Gastroenteritis caused by food infection is frequently not self-limited, and active control measures must be taken immediately. Food-handler carriers are the most frequent source of infection. This being the case, one carrier may start an epidemic, infecting more food handlers who may become carriers either as active clinical cases or as asymptomatic cases. Experience has shown that from 10 to 35 percent of asymptomatic food handlers have rectal cultures positive for *Shigella* organisms as long as 2 months after the original outbreak. *Salmonella* were not found in as high a percentage of food handlers, but many of these asymptomatic food handlers had a positive culture 1 month or more after the onset of the original outbreak.

If facilities for culturing stools are not available, all food handlers may be given sulfadiazine, and any among them with gastrointestinal symptoms should be relieved of duty associated with the preparation and serving of food. Food handlers should be instructed in all the rules and methods of galley sanitation and personal hygiene, and these procedures should be enforced. Food-handler personnel should be inspected daily for signs and symptoms of illness.

Scrub brushes for the hands should be provided and a bucket of a disinfectant (lysol or cresol solution) should be placed at the door of each head (latrine). A guard should be posted to see that everyone thoroughly washes his hands and dips them in the bucket before leaving. This guard can also be of great help in making all men who have diarrhea report to the sick bay. The guard on watch in the head used by food handlers should be particularly reliable. In a widespread outbreak of bacillary dysentery aboard many ships of the Third Fleet which were investigated, many of the cases were undoubtedly due to direct or indirect contact with patients.

If stool cultures of patients are negative for enteric pathogens, and the outbreak is evidently not due to a chemical poison or staphylococcal toxin, a virus should be suspected. In such cases, the possibility of contact transmission, as in respiratory disease, should also be considered.

Drinking water should always be checked bacteriologically if possible, even though it has been found to be an unusual source of infection.

When an outbreak of respiratory illness occurs on a ship, all patients should be isolated if practicable. Bunks should be checked to see that the men sleep head to foot whenever possible. If the outbreak is explosive in character, food, especially milk, must be suspected. Proper methods of mixing and refrigerating milk should be enforced.

SUMMARY

In summary, the steps to be taken in case of an outbreak of gastro-enteritis are as follows:

1. Obtain a history of each case as outlined above, and isolate the patient if possible.
2. Inspect the galley as outlined above, and determine the technique used in preparing all foods under suspicion. Obtain a record of menus as actually served during the previous 3 days. Have a daily "field day" in all food-handling compartments as long as the epidemic lasts.
3. Obtain samples of suspected foods.
4. Examine all food handlers daily for skin lesions, and signs and symptoms of present or recent illness. Use a complete and up-to-date personnel check-off list to be sure all handlers are examined. Remove all questionable men from this duty.
5. Give a short talk to all hands regarding the importance of personal hygiene and the modes of transmitting enteric diseases, including transmission by carriers. The food handlers should be given special additional instructions.
6. Arrange for a 24-hour "head watch" and employ hand brushes and disinfectant as outlined previously.
7. Check on the use of contaminated salt water on decks and anywhere in spaces used for food preparation and handling.
8. Particularly warn all hands and boat crews of the danger of contamination with polluted sea water while in and around the boats.
9. Give all food handlers prophylactic sulfadiazine, 1 gram three times a day for 5 days, if stool cultures cannot be made. Check on the source and handling of milk supply.
10. Chlorinate all fresh-water tanks to a strength of two parts per million. Investigate the source of the water supply. Check for the possibility of cross connections with salt-water lines, etc.
11. To prevent spread, do not transfer men ashore or to other ships except for treatment.
12. Report outbreak to line and medical officers (and to other higher authority if indicated) as directed, as soon as possible.
13. Obtain the assistance of an Epidemiological Unit, if available.

14. If a virus is suspected as the etiological agent, measures for the control of respiratory illnesses should also be instituted as follows:

- a. Isolate all patients if possible.
- b. Ascertain the habits and the duties of the patients who first show the illness, and determine the locations aboard ship (division, bunking compartment, etc.) or special group, etc. in which the illness may have originated and in which new cases may be expected to occur.
- c. Inspect the ship as outlined above for insanitary and unhygienic conditions, and have them corrected.
- d. Check "head to foot" bunking arrangements and ventilation of bunking spaces.
- e. Check particularly the health of milk handlers and the methods used to mix and refrigerate milk and ice cream.
- f. Give a short talk to all hands on the prevention of respiratory illnesses.
- g. Do not transfer men ashore or to other ships unless necessary.

If the service of an Epidemiological Unit is available during or after an outbreak of any kind, it is the duty of the medical officer to request an Epidemiological Unit survey as soon as possible. It is also advisable to ask for a routine epidemiological survey every 6 months.

DEATHS DURING WEEK ENDED NOV. 23, 1946

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

	Week ended Nov. 23, 1946	Correspond- ing week, 1945
Data for 93 large cities of the United States:		
Total deaths.....	8,951	8,537
Average for 3 prior years.....	8,593	
Total deaths, first 47 weeks of year.....	423,505	420,237
Deaths under 1 year of age.....	708	506
Average for 3 prior years.....	554	
Deaths under 1 year of age, first 47 weeks of year.....	31,131	28,396
Data from industrial insurance companies:		
Policies in force.....	67,316,985	67,293,022
Number of death claims.....	12,584	10,042
Death claims per 1,000 policies in force, annual rate.....	9.7	7.8
Death claims per 1,000 policies, first 47 weeks of year, annual rate.....	9.4	10.0

INCIDENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED NOVEMBER 30, 1946

Summary

A total of 261 cases of poliomyelitis was reported, as compared with 366 last week, 176 for the corresponding week in 1944, and a 5-year median of 141. Slight increases occurred in the South Atlantic and East South Central areas. Of 21 States reporting 5 or more cases, 8 reported an increase (38 to 74), and 12 a decline (247 to 137). Kansas reported 12 cases each week. North Carolina, Florida, Mississippi, and Louisiana reported 24 cases, as compared with 8 last week. States reporting currently more than 12 cases each are as follows (last week's figures in parentheses): *Increases*—Massachusetts 17 (12), Minnesota 15 (7), Nebraska 13 (9); *decreases*—New York 14 (32), Illinois 29 (37), Michigan 14 (33), California 20 (22). For the year to date a total of 24,517 cases has been reported, as compared with 18,888 for the corresponding period in 1944 and a 5-year median of 12,134.

The percentage distribution of incidence for the year to date is as follows (corresponding percentages for 1944 in parentheses): New England 3.8 (4.2), Middle Atlantic 8.6 (43.7), East North Central 17.1 (16.9), West North Central 31.9 (6.1), South Atlantic 5.7 (15.2), East South Central 4.3 (5.8), West South Central 9.4 (2.6), Mountain 7.2 (1.1), Pacific 12.1 (4.4).

A total of 2,320 cases of influenza was reported during the current week, as compared with 2,404 last week, 13,220 for the corresponding week last year, and a 5-year median of 2,478. In the 16 weeks since August 15, 20,269 cases have been reported, as compared with 40,811 for the same period last year and a 5-year median for the period of 20,408.

Since the respective approximate dates of lowest seasonal incidence, totals reported have been below both the corresponding figures for last year and the 5-year medians for diphtheria, measles, meningococcus meningitis, scarlet fever, smallpox, typhoid and paratyphoid fever, typhus fever, and whooping cough.

Deaths recorded for the week in 93 large cities of the United States totaled 8,588, as compared with 8,951 last week, 9,462 and 9,406, respectively, for the same weeks of 1945 and 1944, and a 3-year (1943-45) average of 9,608. The cumulative total is 432,098, as compared with 429,699 for the corresponding period of 1945.

Telegraphic morbidity reports from State health officers for the week ended Nov. 30, 1946, and comparison with corresponding week of 1945 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none was reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median 1941-45	Week ended—		Median 1941-45	Week ended—		Median 1941-45	Week ended—		Median 1941-45
	Nov. 30, 1946	Dec. 1, 1945		Nov. 30, 1946	Dec. 1, 1945		Nov. 30, 1946	Dec. 1, 1945		Nov. 30, 1946	Dec. 1, 1945	
NEW ENGLAND												
Maine.....	2	12	0	1	1	-----	155	1	14	0	0	0
New Hampshire.....	0	3	0	-----	-----	-----	2	21	12	0	0	0
Vermont.....	2	0	0	-----	-----	-----	141	2	-----	0	1	0
Massachusetts.....	15	3	4	-----	-----	-----	141	113	134	1	3	5
Rhode Island.....	1	0	0	1	-----	1	1	-----	1	0	1	1
Connecticut.....	0	5	0	3	-----	3	20	4	11	0	1	2
MIDDLE ATLANTIC												
New York.....	16	10	12	11	14	14	49	114	227	14	7	15
New Jersey.....	6	5	5	2	41	15	26	13	22	1	5	5
Pennsylvania.....	13	8	12	4	-----	2	207	528	289	3	15	11
EAST NORTH CENTRAL												
Ohio.....	22	37	21	4	51	9	130	19	22	1	4	3
Indiana.....	10	12	12	9	1,253	30	10	5	21	1	2	2
Illinois.....	1	8	8	1	10	10	11	208	31	4	14	14
Michigan ¹	8	21	12	-----	14	1	31	155	63	1	4	4
Wisconsin.....	0	4	0	16	32	17	26	20	125	4	4	2
WEST NORTH CENTRAL												
Minnesota.....	13	16	9	-----	3	2	7	5	7	2	4	1
Iowa.....	3	5	2	1	-----	-----	5	1	21	0	3	1
Missouri.....	3	5	5	1	13	5	4	27	9	1	0	3
North Dakota.....	2	3	3	-----	647	20	5	-----	1	0	0	0
South Dakota.....	0	1	2	-----	14	-----	3	-----	7	0	1	0
Nebraska.....	1	0	4	-----	112	5	10	4	4	3	0	0
Kansas.....	4	5	7	1	782	5	4	28	17	0	2	1
SOUTH ATLANTIC												
Delaware.....	3	2	0	-----	13	-----	1	-----	2	1	0	0
Maryland ¹	10	16	8	3	26	6	7	1	8	0	0	4
District of Columbia.....	0	1	0	-----	2	-----	1	2	4	1	3	2
Virginia.....	17	27	23	221	1,438	187	67	44	44	1	0	2
West Virginia.....	2	5	7	-----	1,276	14	17	1	5	0	0	0
North Carolina.....	11	55	37	-----	-----	1	17	24	24	0	1	1
South Carolina.....	15	20	11	306	1,117	378	27	29	12	0	0	1
Georgia.....	12	11	11	40	81	40	10	9	9	1	0	1
Florida.....	10	10	8	11	-----	-----	2	6	6	1	1	2
EAST SOUTH CENTRAL												
Kentucky.....	17	13	10	1	14	3	-----	121	37	1	1	3
Tennessee.....	5	19	13	41	131	43	6	7	21	1	5	5
Alabama.....	6	12	16	31	346	97	3	5	5	0	2	2
Mississippi ¹	11	35	10	-----	-----	-----	-----	-----	-----	1	4	1
WEST SOUTH CENTRAL												
Arkansas.....	8	30	17	34	61	75	9	11	11	0	0	0
Louisiana.....	4	14	10	23	14	16	1	3	3	0	1	1
Oklahoma.....	4	10	15	53	54	60	-----	6	4	0	1	1
Texas.....	22	68	58	1,346	4,436	1,138	49	45	45	2	6	4
MOUNTAIN												
Montana.....	0	2	2	17	80	8	30	2	15	0	0	0
Idaho.....	2	1	1	6	24	2	3	91	10	1	0	0
Wyoming.....	3	0	0	-----	52	10	1	2	2	0	0	0
Colorado.....	2	9	9	11	447	50	6	8	10	0	2	1
New Mexico.....	8	6	3	4	-----	2	21	1	1	0	0	1
Arizona.....	5	3	3	115	195	143	42	2	4	0	0	0
Utah ¹	0	0	0	2	383	3	9	29	29	0	0	0
Nevada.....	0	0	0	-----	-----	-----	1	-----	-----	0	0	0
PACIFIC												
Washington.....	2	6	6	-----	-----	-----	12	367	39	2	1	2
Oregon.....	1	2	2	3	15	15	11	20	58	0	1	1
California.....	13	41	33	7	34	34	65	345	345	6	5	5
Total.....	315	581	461	2,320	13,220	2,478	1,405	2,452	3,539	55	105	105
48 weeks.....	14,777	16,744	14,312	211,486	111,040	111,040	653,036	118,302	572,427	5,387	7,500	7,500

¹ New York City only.

² Period ended earlier than Saturday.

Telegraphic morbidity reports from State health officers for the week ended Nov. 30, 1946, and comparison with corresponding week of 1945 and 5-year median—Con.

Division and State	Polioomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever ¹		
	Week ended—		Median 1941-45	Week ended—		Median 1941-45	Week ended—		Median 1941-45	Week ended—		Median 1941-45
	Nov. 30, 1946	Dec. 1, 1945		Nov. 30, 1946	Dec. 1, 1945		Nov. 30, 1946	Dec. 1, 1945		Nov. 30, 1946	Dec. 1, 1945	
NEW ENGLAND												
Maine.....	2	2	0	48	37	23	0	0	0	1	1	1
New Hampshire.....	1	1	0	3	1	8	0	0	0	0	0	0
Vermont.....	1	2	1	2	6	2	0	0	0	0	0	0
Massachusetts.....	17	9	3	89	124	203	0	0	0	4	4	2
Rhode Island.....	0	0	0	5	10	7	0	0	0	0	1	1
Connecticut.....	0	2	2	15	24	39	0	0	0	0	2	0
MIDDLE ATLANTIC												
New York.....	14	21	17	178	251	251	0	0	0	1	4	6
New Jersey.....	4	1	3	24	64	81	0	0	0	1	0	1
Pennsylvania.....	3	4	4	131	170	188	0	0	0	0	2	4
EAST NORTH CENTRAL												
Ohio.....	10	2	4	238	251	251	1	0	0	3	0	3
Indiana.....	12	3	1	70	67	71	0	2	2	0	1	1
Illinois.....	29	10	6	121	149	176	0	1	1	3	0	1
Michigan ¹	14	3	3	116	140	140	0	0	0	0	3	3
Wisconsin.....	5	12	2	48	83	135	0	0	0	0	2	0
WEST NORTH CENTRAL												
Minnesota.....	15	3	1	21	46	72	0	0	0	0	0	0
Iowa.....	7	4	1	19	36	48	0	0	0	0	0	0
Missouri.....	8	11	3	12	53	54	0	0	0	2	0	1
North Dakota.....	5	0	0	2	5	10	0	0	0	0	0	0
South Dakota.....	1	1	1	2	8	15	0	0	0	0	0	0
Nebraska.....	13	1	1	33	47	28	0	0	0	0	0	0
Kansas.....	12	1	1	19	64	76	0	0	1	0	1	1
SOUTH ATLANTIC												
Delaware.....	0	0	0	4	7	10	0	0	0	0	0	0
Maryland ¹	4	1	1	10	51	51	0	0	0	0	0	1
District of Columbia.....	0	5	1	3	7	18	0	0	0	0	2	1
Virginia.....	*4	0	1	23	135	56	0	0	0	6	5	3
West Virginia.....	0	1	1	42	85	77	0	0	0	0	2	1
North Carolina.....	7	2	1	34	89	108	0	0	0	0	1	1
South Carolina.....	0	1	0	7	13	11	0	0	0	1	0	0
Georgia.....	2	1	1	10	22	29	0	0	0	0	2	2
Florida.....	6	4	0	13	7	7	0	0	0	1	3	2
EAST SOUTH CENTRAL												
Kentucky.....	1	0	1	38	62	62	0	0	0	0	0	1
Tennessee.....	2	5	1	29	39	58	0	0	0	0	3	3
Alabama.....	3	0	1	7	35	35	0	0	0	1	1	1
Mississippi ¹	6	1	1	9	22	16	0	0	0	0	0	3
WEST SOUTH CENTRAL												
Arkansas.....	5	1	1	11	10	14	0	0	0	1	1	3
Louisiana.....	5	4	1	2	14	14	0	0	0	1	3	3
Oklahoma.....	4	0	0	6	13	20	0	0	0	0	2	2
Texas.....	5	10	7	35	136	54	0	0	0	8	8	6
MOUNTAIN												
Montana.....	1	3	0	7	16	18	0	2	0	0	0	0
Idaho.....	0	0	0	8	6	10	0	1	0	3	0	0
Wyoming.....	0	0	0	1	5	5	0	0	0	0	1	0
Colorado.....	3	3	1	27	35	25	0	0	0	0	6	4
New Mexico.....	0	0	0	4	9	11	0	0	0	3	1	1
Arizona.....	0	0	1	8	4	6	0	0	0	0	1	1
Utah ¹	2	2	2	14	30	27	0	0	0	0	1	1
Nevada.....	0	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington.....	8	3	3	23	36	39	0	0	0	0	2	1
Oregon.....	0	2	1	38	24	17	1	0	0	6	1	1
California.....	20	31	18	121	283	227	0	0	0	1	4	4
Total.....	261	173	141	1,730	2,831	2,903	2	6	14	47	71	75
48 weeks.....	24,517	13,275	12,134	104,724	161,098	128,170	326	326	701	3,832	4,668	5,222

¹ Period ended earlier than Saturday.

² Including paratyphoid fever reported separately, as follows: Massachusetts 3 (salmonella infection); New Jersey 1; Ohio 1; Illinois 1; South Carolina 1; Florida 1; California 1.

*Delayed report, 2 cases included.

Telegraphic morbidity reports from State health officers for the week ended Nov. 30, 1946, and comparison with corresponding week of 1945 and 5-year median—Con.

Division and State	Whooping cough			Week ended Nov. 30, 1946							
	Week ended—		Median 1941-45	Dysentery			Encephalitis, infectious	Rocky Mt. spotted fever	Tularemia	Typhus fever endemic	Undulant fever
	Nov. 30, 1946	Dec. 1, 1945		Amebic	Bacillary	Unspecified					
NEW ENGLAND											
Maine.....	20	67	67								1
New Hampshire.....		15	5								
Vermont.....	7	72	43								1
Massachusetts.....	163	165	165		1						
Rhode Island.....	29	31	31								
Connecticut.....	45	65	65				1				3
MIDDLE ATLANTIC											
New York.....	176	301	301	5	10					1	11
New Jersey.....	87	273	214								1
Pennsylvania.....	181	239	183	1							4
EAST NORTH CENTRAL											
Ohio.....	95	153	153						4		1
Indiana.....	12	18	18	1			3		7		3
Illinois.....	82	126	126						9		8
Michigan ²	157	141	142	1					3		5
Wisconsin.....	216	48	117								1
WEST NORTH CENTRAL											
Minnesota.....	5	15	47	2							1
Iowa.....	18	10	10								14
Missouri.....	10	6	16							1	
North Dakota.....		4	10								
South Dakota.....		6	6								
Nebraska.....	3	10	6								
Kansas.....	5	22	29								7
SOUTH ATLANTIC											
Delaware.....	7	2	3								
Maryland ²	31	33	46								
District of Columbia.....	1	4	4								
Virginia.....	45	23	58	1		10			3		
West Virginia.....	7	8	19								
North Carolina.....	20	90	90					1	1	2	
South Carolina.....	12	65	42	1	6				1	1	1
Georgia.....	20	24	16	1					1	11	4
Florida.....	38	5	9							2	12
EAST SOUTH CENTRAL											
Kentucky.....	30	39	39		2						
Tennessee.....	14	30	42					1	1	4	1
Alabama.....	7	38	31	1					1	8	
Mississippi ²										2	4
WEST SOUTH CENTRAL											
Arkansas.....	12	8	20								3
Louisiana.....	1	1	3							2	1
Oklahoma.....	6	10	5	1			1		1		1
Texas.....	137	115	156	7	383	60			1	14	15
MOUNTAIN											
Montana.....	12	1	15								
Idaho.....	3	65	8		3						
Wyoming.....	5		4	1							
Colorado.....	6	31	31								
New Mexico.....	4	12	12		12	3				1	1
Arizona.....	17	9	11			17					
Utah ²	10	8	11								1
Nevada.....											
PACIFIC											
Washington.....	10	30	30							1	
Oregon.....	12	8	13								2
California.....	40	120	134	1	6				2		1
Total.....	1,818	2,566	2,566	24	423	90	5	2	35	50	109
Same week, 1945.....	2,566			28	457	127	10	0	30	97	88
Average, 1943-45.....	2,355			30	516	139	11	4	26	80	
48 weeks: 1946.....	91,503			2,255	15,392	4,021	588	566	896	3,215	4,933
1945.....	116,257			1,805	23,325	10,078	597	464	694	4,858	4,001
Average, 1943-45.....	124,682		165,897	1,832	20,853	8,590	617	453	657	4,187	

² Period ended earlier than Saturday.

⁴ 5-year median, 1941-45.

WEEKLY REPORTS FROM CITIES ¹

City reports for week ended Nov. 23, 1946

This table lists the reports from 86 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Polymyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
NEW ENGLAND												
Maine:												
Portland.....	0	0	-----	0	1	0	2	0	6	0	0	1
New Hampshire:												
Concord.....	0	0	-----	0	-----	0	0	1	0	0	0	-----
Massachusetts:												
Boston.....	11	0	-----	0	8	1	5	7	13	0	0	38
Fall River.....	0	0	-----	0	2	1	0	0	3	0	0	5
Springfield.....	0	0	-----	0	4	0	0	2	0	0	0	23
Rhode Island:												
Providence.....	0	0	-----	0	5	0	2	0	7	0	0	45
Connecticut:												
Bridgeport.....	0	0	-----	0	-----	0	4	0	0	0	0	1
Hartford.....	0	0	-----	0	-----	0	1	0	4	0	0	4
New Haven.....	1	0	-----	1	-----	2	0	0	1	0	1	13
MIDDLE ATLANTIC												
New York:												
Buffalo.....	0	0	-----	0	-----	0	5	0	4	0	0	10
New York.....	25	0	-----	3	22	2	35	18	66	0	4	49
Rochester.....	0	0	-----	0	2	0	0	1	7	0	1	3
Syracuse.....	0	0	-----	0	1	0	1	0	14	0	0	36
New Jersey:												
Camden.....	1	0	-----	1	-----	0	1	1	1	0	0	1
Newark.....	0	0	-----	1	-----	0	7	0	5	0	0	30
Trenton.....	0	0	-----	1	17	0	2	0	2	0	0	1
Pennsylvania:												
Philadelphia.....	2	0	-----	3	-----	1	15	2	26	0	0	33
Pittsburgh.....	5	0	-----	0	92	1	12	1	14	0	0	4
Reading.....	0	0	-----	0	2	0	0	0	2	0	0	8
EAST NORTH CENTRAL												
Ohio:												
Cincinnati.....	2	0	-----	1	-----	0	2	0	7	0	1	2
Cleveland.....	0	0	-----	7	31	0	8	6	29	0	0	14
Columbus.....	0	0	-----	0	2	0	0	0	4	0	0	4
Indiana:												
Fort Wayne.....	0	0	-----	0	3	0	2	1	1	0	0	-----
Indianapolis.....	2	0	-----	0	1	0	4	1	10	0	0	16
South Bend.....	0	0	-----	0	-----	0	0	0	3	0	0	-----
Terre Haute.....	0	0	-----	0	-----	0	1	0	2	0	0	-----
Illinois:												
Chicago.....	0	0	-----	0	3	1	15	12	48	0	0	41
Springfield.....	0	0	-----	0	-----	0	4	1	2	0	0	5
Michigan:												
Detroit.....	8	0	-----	0	2	2	7	4	34	0	0	57
Flint.....	0	0	-----	0	-----	0	3	2	13	0	0	-----
Grand Rapids.....	0	0	-----	0	-----	0	0	0	2	0	0	10
Wisconsin:												
Kenosha.....	0	0	-----	0	-----	0	0	0	0	0	0	-----
Milwaukee.....	0	0	-----	9	16	0	1	0	28	0	0	63
Racine.....	0	0	-----	0	-----	0	1	2	6	0	0	4
Superior.....	0	0	-----	0	1	0	0	0	0	0	0	1
WEST NORTH CENTRAL												
Minnesota:												
Minneapolis.....	2	0	-----	0	2	3	4	1	9	0	0	-----
St. Paul.....	2	0	-----	0	5	0	4	1	4	0	0	2
Missouri:												
Kansas City.....	0	0	-----	0	1	0	6	1	2	0	0	-----
St. Joseph.....	0	0	-----	0	-----	1	0	0	0	0	0	-----
St. Louis.....	3	0	-----	2	0	1	7	4	12	0	2	-----

¹ In some instances the figures include nonresident cases.

City reports for week ended Nov. 23, 1946—Continued

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
WEST NORTH CENTRAL—continued												
North Dakota:												
Fargo.....	0	0		0		0	0	0	0	0	0	
Nebraska:												
Omaha.....	0	0		0		0	2	4	4	0	0	3
Kansas:												
Topeka.....	1	0		0		0	0	2	1	0	0	
Wichita.....	0	0	1	0	1	0	2	1	3	0	0	
SOUTH ATLANTIC												
Delaware:												
Wilmington.....	0	0		0		0	1	0	2	0	0	5
Maryland:												
Baltimore.....	4	0	3	2	5	0	4	1	9	0	2	28
Cumberland.....	0	0		0		0	0	0	0	0	0	
Frederick.....	0	0		0	6	0	0	0	0	0	0	
District of Columbia:												
Washington.....	0	0	1	0	1	0	4	1	6	0	1	10
Virginia:												
Lynchburg.....	0	0		0		0	1	0	0	0	0	2
Richmond.....	0	0		0	10	0	0	0	1	0	1	
Roanoke.....	1	0		0		0	1	0	1	0	0	
West Virginia:												
Charleston.....	0	0		0		0	0	0	1	0	0	
Wheeling.....	0	0		0		0	2	0	0	0	0	
North Carolina:												
Raleigh.....	0	0		0		0	1	0	0	0	0	7
Wilmington.....	0	0		0	1	0	1	0	1	0	0	
Winston-Salem.....	0	0		0	42	0	2	0	2	0	0	3
South Carolina:												
Charleston.....	0	0	2	0	1	0	2	0	0	0	0	
Georgia:												
Atlanta.....	0	0	5	1	3	0	4	0	4	0	0	
Brunswick.....	0	0		0		0	0	0	1	0	0	
Savannah.....	0	0		0	5	0	0	0	0	0	0	
Florida:												
Tampa.....	4	0		0	1	1	1	0	3	0	0	
EAST SOUTH CENTRAL												
Tennessee:												
Memphis.....	1	0		0		0	7	0	3	0	1	10
Nashville.....	0	0		1		0	4	0	1	0	0	
Alabama:												
Birmingham.....	2	0		0	1	0	1	1	2	0	0	
Mobile.....	0	0	1	1		0	2	0	1	0	0	
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock.....	0	0		0	1	0	0	1	1	0	0	
Louisiana:												
New Orleans.....	0	0	5	1		0	2	3	2	0	0	1
Shreveport.....	0	0		0		0	0	0	0	0	0	
Texas:												
Dallas.....	1	0		0		0	4	1	7	0	0	3
Galveston.....	0	0		0		0	3	0	0	0	0	
Houston.....	1	0		0		0	2	0	1	0	0	1
San Antonio.....	2	0		2		0	6	1	3	0	0	1
MOUNTAIN												
Montana:												
Billings.....	0	0		0	2	0	1	0	0	0	0	
Great Falls.....	0	0		0	1	0	1	0	2	0	0	
Helena.....	0	0		0		0	0	0	0	0	0	
Missoula.....	0	0		0		0	1	0	2	0	0	
Colorado:												
Denver.....	2	0	5	0	1	2	9	1	22	0	0	3
Pueblo.....	0	0		0		0	0	0	1	0	0	
Utah:												
Salt Lake City.....	0	0		0	2	0	0	0	5	0	0	

City reports for week ended Nov. 23, 1946—Continued

Division, State, and city	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Pollomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
PACIFIC												
Washington:												
Seattle	3	0	-----	1	4	0	5	0	3	0	0	2
Spokane	0	0	-----	0	6	0	2	4	6	0	0	-----
Tacoma	1	0	-----	0	-----	0	0	0	1	0	0	-----
California:												
Los Angeles	6	0	11	0	10	4	5	4	28	0	2	6
Sacramento	0	0	-----	0	-----	0	2	0	0	0	0	-----
San Francisco	0	0	2	0	-----	2	6	0	11	0	0	6
Total	93	0	55	12	329	25	252	94	532	0	16	617
Corresponding week, 1945	97	-----	104	16	547	-----	289	-----	595	0	5	584
Average, 1941-45	91	-----	176	30	601	-----	367	-----	780	0	14	794

² 3-year average, 1943-45.

³ 5-year median, 1941-45.

Dysentery, amebic.—Cases: New York, 7; Philadelphia 1; Chicago 6; Detroit 1; Memphis 1; Los Angeles 1.

Dysentery, bacillary.—Cases: New York 14; Philadelphia 2; Chicago 1; San Antonio 1; Los Angeles 2.

Dysentery, unspecified.—Cases: Wilmington, Del., 1; San Antonio 12.

Typhoid fever.—Cases: Detroit 1; St. Louis 1.

Typhus fever, endemic.—Cases: Atlanta 1; Tampa 2; Memphis 1; New Orleans 3; Shreveport 1; Los Angeles 2.

Rates (annual basis) per 100,000 population, by geographic groups, for the 86 cities in the preceding table (estimated population, 1943, 34,088,900)

	Diphtheria case rates	Encephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Pollomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
New England	34.7	0.0	2.9	0.0	58	11.6	40.4	28.9	98	0.0	2.9	375
Middle Atlantic	15.3	0.0	4.2	0.5	63	1.9	36.1	10.6	65	0.0	2.3	81
East North Central	7.3	0.0	4.3	1.2	36	1.8	29.2	17.6	115	0.0	0.6	132
West North Central	16.5	0.0	6.2	0.0	21	10.3	51.5	28.8	72	0.0	4.1	14
South Atlantic	14.7	0.0	18.0	4.9	123	1.6	39.2	3.3	51	0.0	6.5	90
East South Central	17.7	0.0	5.9	11.8	6	0.0	82.6	5.9	41	0.0	5.9	59
West South Central	11.5	0.0	14.3	8.6	3	0.0	48.8	17.2	40	0.0	0.0	17
Mountain	16.5	0.0	41.3	0.0	50	16.5	99.1	8.3	264	0.0	0.0	25
Pacific	15.8	0.0	20.6	1.6	32	9.5	31.6	12.7	77	0.0	3.2	22
Total	14.3	0.0	8.4	1.8	50	3.8	38.7	14.4	82	0.0	2.5	95

TERRITORIES AND POSSESSIONS

Panama Canal Zone

Notifiable diseases—September 1946.—During the month of September 1946, cases of certain notifiable diseases were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Residence •									
	Panama City		Colon		Canal Zone		Outside the Zone and terminal cities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox.....	2		1		2		2		7	
Diphtheria.....	10		1				3	2	14	2
Dysentery:										
Amebic.....	2		1		2		2	1	7	1
Bacillary.....	3			1	4				7	1
Leprosy.....	4						1		1	
Malaria.....			1		23		44	2	172	2
Measles.....	48	2	62		52		39	2	201	4
Mumps.....							10		10	
Paratyphoid fever.....	1				1				2	
Pneumonia.....		15		2	61	4		6	161	27
Tuberculosis.....		21		4	11			6	111	31
Typhoid fever.....	1						3		4	
Typhus fever, endemic.....					1				1	
Whooping cough.....					2				12	

• If place of infection is known, cases are so listed instead of by residence.

¹ Includes 17 recurrent cases.

² In the Canal Zone only.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended November 9, 1946.—During the week ended November 9, 1946, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox.....		9	1	185	295	51	36	92	94	763
Diphtheria.....	2	2	2	42	8	3	8	1	1	69
Dysentery, bacillary.....				1						1
German measles.....				5	13		1	6	8	33
Influenza.....					3					4
Measles.....		118	3	66	85	23	197	101	19	612
Meningitis, meningococcus.....				3	1				1	5
Mumps.....				16	259	14	74	33	114	510
Polio-myelitis.....	1	2	1	28	14	1	2			50
Scarlet fever.....		12	6	90	90	17		12		245
Tuberculosis (all forms).....		10	13	78	48	21	16	115	36	337
Typhoid and paratyphoid fever.....			1	4					7	12
Undulant fever.....				4	2					6
Veneral diseases:										
Gonorrhoea.....		14	16	140	120	45	28	32	79	474
Syphilis.....	1	20	8	101	84	9	13	10	28	274
Whooping cough.....		10		26	66	2	4	10		118

PANAMA

Encephalomyelitis.—Under date of November 21, 1946, the Director of Public Health of Panama reported an outbreak of equine encephalomyelitis in the interior of the country. Five human cases have also been confirmed, 2 of them proving fatal.

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—Except in cases of unusual incidence, only those places are included which had not previously reported any of the above-named diseases, except yellow fever, during recent months. All reports of yellow fever are published currently.

A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday of each month.

Cholera

China.—Cholera has been reported in certain provinces of China as follows: Island of Formosa (Taiwan), September 1–10, 1946, 171 cases, 80 deaths, September 11–20, 1946, 123 cases, 65 deaths, September 21–30, 1946, 130 cases, 69 deaths; Kwangtung Province, October 1–10, 1946, 83 cases, 24 deaths.

Plague

Argentina—Buenos Aires.—Under date of December 3, 1946, information was received of the occurrence of 9 cases of bubonic plague with 3 deaths in Buenos Aires, Argentina. The cases were stated to have occurred in an isolated and distant area of the port zone on the suburban waterfront.

Smallpox

China—Hong Kong.—For the week ended November 23, 1946, 196 cases of smallpox were reported in Hong Kong, China, with the number of deaths also declining from the preceding week.

Colombia.—For the month of October 1946, 88 cases of smallpox with 3 deaths were reported in Colombia. Departments reporting the highest incidence are: Santander, 37 cases, 2 deaths; Caldas, 18 cases; Tolima, 12 cases.

Typhus Fever

Belgian Congo.—During the week ended November 9, 1946, 43 cases of typhus fever were reported in Belgian Congo.

Colombia.—During the month of October 1946, 72 cases of typhus fever with 3 deaths were reported in Colombia. Departments reporting the highest incidence are: Narino, 28 cases, 2 deaths; Antioquia, 20 cases, 1 death; Caldas, 19 cases.

Yellow Fever

French Equatorial Africa—Ubangi Shari Department—Carnot.—Yellow fever has been reported in the town of Carnot, on the upper Shanga River, in Ubangi Shari Department, French Equatorial Africa, as follows: On November 23, 1946, 1 death, and on November 25, 1946, 2 fatal cases (suspected).

FEDERAL SECURITY AGENCY
UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

DIVISION OF PUBLIC HEALTH METHODS

G. ST. J. PERROTT, *Chief of Division*



The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Public Health Methods, pursuant to the following authority of law: United States Code, title 42, sections 241, 245, 247; title 44, section 220.

It contains (1) current information regarding the prevalence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1946

For sale by the Superintendent of Documents, Washington 25, D. C.

Price 10 cents. Subscription price \$4.00 a year

